REMARKS/ARGUMENTS

Claims 1 – 23 are currently pending in the application, with claims 1 – 6 being withdrawn and claims 7 – 23 being rejected.

For the reasons set forth below, applicant respectfully requests reconsideration of the claim rejections.

Patentability of the Claims

Claim 7

This independent method claim was rejected under 35 USC 103(a) as being unpatentable over Robertson, US Patent No. 5,487,378. The grounds for the rejection of claim 7 state:

> *"As to claims 7-16, Robertson lacks the detailed steps cited in claims 7-16. Robertson however teaches an inhaler with structures that are required (see rejection cited for claims 17-23) to perform the method steps cited in claims 7- 16. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to obtain the claimed method steps through the use of Robertson's inhaler."*

Applicant understands the foregoing to mean that using Robertson's inhaler will carry out the steps of method claim 7.[1]

In reply, applicant notes that at least one step recited in claim 7 is neither found nor suggested in Robertson. In pertinent part, that step recites the following:

> *"instantaneously heating the liquid ... by an amount sufficient to produce a vapor bubble ... for propelling from each chamber droplets of the liquid ... ."*

Robertson's aerosol generator uses a high-frequency vibrator element that is excited to vibrate in the range of 10 kHz to 500 kHz to impart pressure waves to the liquid and thereby force droplets through the nozzles. (Column 3, lines 57 – 63). There is no mechanism in Robertson for instantaneously heating liquid in a chamber to produce a vapor bubble (that is,

[1] Although the rejection is stated in terms of obviousness, it appears to be more akin to an anticipation rejection. The foregoing rejection grounds fail to state how the reference would be modified by one of ordinary skill or why one would be motivated to modify the Robertson device.

vaporizing some of the liquid) that propels droplets from the chamber. Nor is there any reason as to why the Robertson device might be modified to vaporize the liquid that is otherwise ejected from the nozzles via the energy supplied by the vibration element. For this reason alone, the rejection of claim 7 should be withdrawn for failing to state sufficient grounds for rejection under an anticipation or obviousness standard.

On page 6 of the latest office action, the Examiner sets forth a theory that the application of pressure waves to the liquid in Robertson will produce molecular activity for generating heat. Specifically, the rationale set forth in the office action asserts that in Robertson "*the liquid is pressurized, thus agitation or vibration of liquid can cause individual molecules of the liquid to bounce back at one another, which can result in heat transfer...*" and "*there is no structure in Robertson that will prevent one to increase vibration time and frequency such to produce extensive vibration, hence heat that caused liquid to boil and produce vapor.*"

Applicant respectfully disagrees. The liquid in Robertson is not pressurized. (In fact, the term "pressurized" is not used in the Robertson reference.) Energy in the form of pressure waves is applied to the liquid, which is essentially incompressible. The liquid is thus driven (at ultrasonic frequencies) out of the nozzles of the device. There is no containment or heat trapping mechanism in Robertson that would permit any significant heating of the liquid, much less boiling of the liquid.

The argument on page 6 of the office action also states: "*As Applicant noted, Robertson teaches heat transducer and heat is used on the liquid to generate small drops.*" In reply, applicant respectfully points out that he has nowhere made the foregoing remark. To the contrary, the previous paper filed by applicant addressed the question of heat transducers as follows:[2]

"*Nothing in the Robertson specification talks about "heat transducers' or 'heating the medicinal fluid.*""

In setting forth the rejection grounds, therefore, the Examiner has relied on a misreading of applicant's remarks. In short, a proper *prima facie* case of obviousness has not

been made in connection with claim 7 and, therefore, the rejection of claim 7 and the claims depending therefrom should be withdrawn.

Claim 15

Independent method claim 15 was rejected under the same grounds applied to claim 7. Applicant notes that claim 15 includes, among other steps not found in Robertson, the step of: "*instantaneously heating the liquid in the chambers by an amount sufficient to produce a vapor bubble in each chamber that propels the liquid from the chamber.*"

As noted above in connection with claim 7, no mechanism for carrying out this step is contemplated in Robertson. Thus, for the reasons set forth above in connection with claim 7, it is submitted that claim 15 and its dependent claim 16 are allowable.

Claim 17

This apparatus claim was also rejected as being unpatentable in view of Robertson. This claim includes, in part:

> *a plurality of heat transducers, one heat transducer residing in each chamber and controllable for instantaneously heating the liquid in the chamber.*

Applicant's prior response pointed out that there are no heat transducers disclosed in Robertson. In the present office action (page 3), the Examiner asserts that "*vibration and confined space ... would allow heat transfer between the molecules of the liquid and walls of the confined space where the liquid is stored.*"

In reply, applicant notes that, even if it were possible for Robertson to drive its vibrating element to heat liquid, there is no confined space for storing the liquid as proposed by the Examiner. Rather, as noted above, the Robertson device imparts pressure waves to the liquid and thereby forces droplets through the nozzles of the chamber. The energy applied by Robertson to the liquid is used to move the liquid from the chamber (through the nozzles) rather than to trap and heat the liquid.

As to the question of whether Robertson discloses the claimed feature of heating the liquid "*by an amount sufficient to produce a vapor bubble,*" the Examiner refers to column 6, lines 25 -57 of Robertson. However, that portion of Robertson states:

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[2] Amendment dated Aug 1, 2007, page 8.

"Bubbles inside the system can present a very serious problem since they can prevent operation of the aerosol generator and/or dose gauge."

In the next lines, Robertson states:

"Hence the bubble free filling and maintenance of a bubble free system is of paramount importance. To reduce the effects of the liquid outgassing to form bubbles during the service life of the device a portion of the liquid feed system may be formed with a gas remover."

It is clear from the above that the bubbles noted here are not vapor bubbles generated by heat from a heat transducer. Moreover, it is clear that Robertson, in fact, wishes to avoid any bubbles in its liquid and employs things like gas removers to prevent the formation of such bubbles. Accordingly, this feature of the claim is neither disclosed nor suggested in the portion of the Robertson disclosure identified by the Examiner.

In view of the foregoing, applicant submits that claim 17 and its dependent claim 18 are allowable.

Claim 19

This claim includes the heat transducer limitation that, in pertinent part, matches that limitation of claim 17. Accordingly, claim 19 and the claims depending therefrom are believed to be allowable for the reasons set forth above in connection with claim 17.

Conclusion

In view of the foregoing, applicant believes that all of the currently pending claims are in condition for allowance, and an early notification to that effect is respectfully requested. If the Examiner has any questions, he is invited to contact applicant's attorney at the below-listed telephone number.

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